



Bendix® BA-922® Compressor Installation and Application Review

Bendix® BA-922® Compressor

Complete one Compressor Installation and Application Review Form for each fleet installation arrangement (vehicle type/engine combination) and send to:

Bendix Commercial Vehicle Systems LLC
Attn: Engineering Manager of Charging
901 Cleveland Street
Elyria, Ohio 44035

Note: Measurements should be made with commercial grade instruments with tolerances of 3% max.

Caution: When working on vehicles and/or carrying out testing procedures, always follow standard industry safety guidelines, including the use of adequate eye protection, etc.

Compressor Part Number: _____

Compressor Serial Number: _____

Vehicle Make and Model: _____

Engine Make and Model: _____

Engine Serial/Unit Number: _____

Submitted By: _____

Employed By: _____

Date submitted: _____

The following items should accompany this form:

- Attach any available air system schematic
- Attach engine data sheets
- Attach available technical information for associated components
- Attach photos of the compressor installation
- Attach photos of the compressor air inlet hose arrangement
- Attach photos of the compressor governor arrangement
- Attach photos of any devices in the discharge line
- Attach photos of the air dryer



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Section I Application Information

Check the boxes that best apply and use the comments space to further clarify:

On-Highway and Linehaul

- Straight Truck
- Single trailer
- Double trailer
- Triple trailer
- Motor Coach
- RV

Other :

Vocational

- Delivery
- Dumper/Mixer
- Terminal Jockey
- Bulk Unloader
- Transit Bus
- Crash/Fire/Rescue

Other :

Off-Highway and Military

Description:



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Section II

Vehicle Features Requiring Air

Check the boxes that best apply and use the comments space to further clarify:

Air brakes

Multiple axles

Number of axles: _____

Air suspension

Description:

Bulk Unloading

Typical time to unload: _____

Frequency of unloading events: _____

Central Tire Inflation

Description:

Kneeling capability (bus feature)

Doors or windshield wipers

Air park or door interlock

Other:

Description:



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Section III Vehicle/Engine Requirements and Expectations

Life expectation (in hours or miles): _____

Duty Cycle expectation (percent time compressor operates loaded):

- 5% to 25%
- 25% to 35%
- greater than 35%

Recommended Test Procedure:

Install a pressure switch (60 - 90 psi) in the governor signal line. Record the switch voltage or continuity during vehicle operation. The duty cycle is the quotient of the compressor loaded time (low pressure in the signal line) and the total time. The total time of the test should reflect a typical operation cycle of the vehicle.

Was duty cycle measured? NO

YES Measured value: _____

Installation angles:

Engine installation angle: _____

Compressor rotated angle: _____

Gradability (vehicle operation on slope):

Side: _____

For/Aft: _____

Percent of time operated on inclines? _____

Compressor delivery/system pressure: _____

Engine rated speed: _____

Air compressor drive ratio: _____



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Compressor Thru-drive:

Pump Drive (For new applications go to Appendix D of BW-121-A)

Thru-drive to be used for: _____

Installed pump: _____

Vendor/PN: _____

Operating torque: _____

Operating HP: _____

Worst case torque (consider spikes and cold operation): _____

Worst case HP (consider spikes and cold operation): _____

Describe pump/motor control system:

Comments:



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Section IV Air System Components

Inlet Line

Filter source

- Engine Air Filter

Allowable engine air inlet restriction (see the engine manufacturer's engine data sheet):

Clean _____

Dirty _____

Recommended Test Procedure:

Install a water manometer (gauge) to read the pressure at the air inlet fitting on the compressor. If the compressor shares the engine air intake system then restrict the engine air filter such that at rated engine power and speed the engine is at its maximum allowable inlet restriction for a dirty filter (see the engine data sheet). Under this condition operate the engine at rated speed and power and read the pressure at the compressor air inlet fitting while the compressor is loaded/pumping.

Measured compressor air inlet restriction:

(measured at compressor at rated engine speed and power with a dirty filter)

-
- Dedicated air compressor filter

Description:



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Measured compressor air inlet restriction:
(measured at compressor at rated engine speed with a dirty filter)

Line size _____

Line length _____

Expected/Measured Worst Case Inlet Air Temperature: _____

Was measured restriction less than 30 in H₂O? YES NO

Is inlet air temperature greater than 170°F? YES NO

Recommended Test Procedure:

Install a temperature probe in the air compressor inlet hose or fitting as close to the compressor as possible. Operate the vehicle such that the engine is at operating temperature and the compressor is loaded/pumping. Record the compressor air inlet temperature and note the ambient temperature. To obtain the maximum air inlet temperature, add the difference between the recorded inlet temperature and the noted ambient temperature to the maximum expected ambient temperature.

Was the restriction measured per the recommended procedure? YES NO

If no, describe procedure:



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Discharge line

First component after compressor (filters, separators, traps, dryers)

What: _____

Line ID size to: _____

Distance to: _____

Second component after compressor (filters, separators, traps, dryers)

What: _____

Line ID size to: _____

Distance to: _____

Third component after compressor (filters, separators, traps, dryers)

What: _____

Line ID size to: _____

Distance to: _____

Is the discharge piping routed in a downhill manner to the air dryer?

YES NO

Measured compressor discharge pressure

(measured at the compressor) _____

Recommended Test Procedure:

Install a pressure gauge at the discharge fitting of the compressor and record the discharge pressure at the time of governor cut-out.

Note, any devices in the discharge line between the compressor and air dryer should represent their maximum possible restriction when the discharge pressure of the compressor is being measured.

Was measured discharge pressure greater than 150 psi? YES NO



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Total air reservoir capacity? _____

Charge time required to raise the reservoir pressure from governor cut in to cut out at rated engine speed? _____

Recommended Test Procedure:

Drain down the entire air system (supply, service and accessory tanks) to below 75 psi. As the compressor begins to charge the system, start a timer when the tank pressure reaches the governor cut in pressure. Stop the timer when the compressor cuts out (dryer purge can usually be heard)

Was measured charge time less than 90 seconds? YES NO

Coolant Supply

Source: _____

Line size to: _____

Distance to: _____

Maximum allowable engine coolant temperature: _____

Maximum expected compressor coolant temperature: _____

Recommended Test Procedure:

Install a temperature probe in the coolant supply fitting on the compressor and either monitor or measure the engine coolant temperature (at thermostat housing). Operate the vehicle such that the engine reaches operating temperature. Record the engine coolant temperature and the compressor coolant supply temperature. The maximum expected compressor coolant temperature is the sum of the recorded compressor coolant temperature and the difference between the recorded engine coolant temperature and the maximum allowable engine coolant temperature.

Is the maximum expected compressor coolant supply temperature less than 220°F?

YES NO



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Coolant Return

Return Port Location: _____

Line size to: _____

Distance to: _____

Measured coolant flow rate

At engine idle: _____

At engine rated speed: _____

Recommended Test Procedure:

Install a flow meter in series with the coolant supply or return line of the air compressor. Note the flow rate through the compressor when the engine thermostats are open at engine idle and rated speed.

Was measured flow rate greater than .6 gpm at idle and 1.9 gpm at rated speed?

YES NO

Measured Coolant Pressure Drop - alternative measurement (pressure drop between inlet fitting and return fitting)

At engine idle: _____

At engine rated speed: _____

Recommended Test Procedure:

Install pressure gauges at the inlet and outlet fittings of the air compressor. Record the pressures (or pressure difference) at idle and rated speed.

Was measured pressure drop greater than 1.0 psi at idle and greater than 4.4 psi at rated speed?

YES NO



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Compressor Oil Supply

Source: _____

Line size to: _____

Distance to: _____

Compressor Oil Return

- Return through front flange
- Return through bottom drain only
- Return through both bottom drain and front flange

Measured Oil Supply Pressure (record at compressor fitting at engine idle):

Recommended Test Procedure:

Install a pressure gauge at the oil fitting on the air compressor. Record the oil pressure at engine idle with the engine at normal operating temperature.

Was measured oil supply pressure greater than 14.0 psi ? YES NO

Describe any auxiliary fittings at the oil supply of the compressor:



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Governor location

- Compressor mounted
- Remote

Compressor control

- Governor for Compressor Unloader
Governor part number and/or vendor: _____

Cut out pressure: _____

Range or band: _____

- Governor with discharge line unloading
Governor part number and/or vendor: _____

Cut out pressure: _____

Range or band: _____

Governor air signal line size/length: _____

Governor air control line size/length: _____



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Air Dryer

Air Dryer part number and/or vendor: _____

Maximum allowable temperature to the dryer: _____

Minimum allowable temperature to the dryer: _____

Recommended Test Procedure:

Install a temperature probe at the air dryer inlet fitting. Operate the vehicle such that the engine is at operating temperature. Drain an air tank such that the compressor runs continuously but the pressure remains about 10 psi below the governor cutout pressure. Note the dryer air inlet temperature after the compressor has run for 90 seconds. Also note the ambient temperature. To obtain the maximum air inlet temperature, add the difference between the recorded inlet temperature and the noted ambient temperature to the maximum expected ambient temperature. Likewise, to obtain the minimum expected inlet temperature, add the temperature difference to the minimum expected ambient temperature.

Measured inlet temperature to the dryer: _____

Ambient temperature at time of measurement: _____

What is the maximum expected ambient temperature? _____

What is the minimum expected ambient temperature? _____

What is the maximum expected dryer inlet temperature? _____

What is the minimum expected dryer inlet temperature? _____



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COMMENTS

BENDIX ENGINEERING USE ONLY

Does the compressor installation meet all Bendix Commercial Vehicle Systems requirements?

YES No

(See BW-121-A, BW-110-A and BW-109-A for complete application and installation requirements.)

ACCEPTED? YES No

APPROVED BY: _____ (Engineer) DATE: _____

APPROVED BY: _____ (Manager) DATE: _____

COMMENTS / EXCEPTIONS:
